

## **RAW SEQUENCE LISTING**

**The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.**

Application Serial Number: 10/562, 021  
Source: JFWP  
Date Processed by STIC: 01/04/2006

***ENTERED***



IFWP

**RAW SEQUENCE LISTING**  
**PATENT APPLICATION:** US/10/562,021

**DATE:** 01/04/2006  
**TIME:** 10:35:43

**Input Set :** A:\Sequence.ST25.txt  
**Output Set:** N:\CRF4\01042006\J562021.raw

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3 <110> APPLICANT: Svendsen, Allan
4      Beier, Lars
5      Spendler, Tina
6      Jensen, Morten
7      Jorgensen, Christel
9 <120> TITLE OF INVENTION: CGTASE VARIANTS
11 <130> FILE REFERENCE: 10340.204-US
C--> 13 <140> CURRENT APPLICATION NUMBER: US/10/562,021
C--> 13 <141> CURRENT FILING DATE: 2005-12-22
13 <160> NUMBER OF SEQ ID NOS: 3
15 <170> SOFTWARE: PatentIn version 3.3
17 <210> SEQ ID NO: 1
18 <211> LENGTH: 686
19 <212> TYPE: PRT
20 <213> ORGANISM: Bacillus stearothermophilus
22 <400> SEQUENCE: 1
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29           20          25          30
32 Tyr Gly Leu Tyr Asp Pro Thr Lys Ser Lys Trp Lys Met Tyr Trp Gly
33           35          40          45
36 Gly Asp Leu Glu Gly Val Arg Gln Lys Leu Pro Tyr Leu Lys Gln Leu
37           50          55          60
40 Gly Val Thr Thr Ile Trp Leu Ser Pro Val Leu Asp Asn Leu Asp Thr
41 65           70          75          80
44 Leu Ala Gly Thr Asp Asn Thr Gly Tyr His Gly Tyr Trp Thr Arg Asp
45           85          90          95
48 Phe Lys Gln Ile Glu Glu His Phe Gly Asn Trp Thr Phe Asp Thr
49           100         105         110
52 Leu Val Asn Asp Ala His Gln Asn Gly Ile Lys Val Ile Val Asp Phe
53           115         120         125
56 Val Pro Asn His Ser Thr Pro Phe Lys Ala Asn Asp Ser Thr Phe Ala
57           130         135         140
60 Glu Gly Gly Ala Leu Tyr Asn Asn Gly Thr Tyr Met Gly Asn Tyr Phe
61 145           150         155         160
64 Asp Asp Ala Thr Lys Gly Tyr Phe His His Asn Gly Asp Ile Ser Asn
65           165         170         175
68 Trp Asp Asp Arg Tyr Glu Ala Gln Trp Lys Asn Phe Thr Asp Pro Ala
69           180         185         190
72 Gly Phe Ser Leu Ala Asp Leu Ser Gln Glu Asn Gly Thr Ile Ala Gln
73           195         200         205
76 Tyr Leu Thr Asp Ala Ala Val Gln Leu Val Ala His Gly Ala Asp Gly

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80	Leu Arg Ile Asp Ala Val Lys His Phe Asn Ser Gly Phe Ser Lys Ser		
81	225	230	235
84	240		
85	Leu Ala Asp Lys Leu Tyr Gln Lys Lys Asp Ile Phe Leu Val Gly Glu		
88	245	250	255
89	Trp Tyr Gly Asp Asp Pro Gly Thr Ala Asn His Leu Glu Lys Val Arg		
92	260	265	270
93	Tyr Ala Asn Asn Ser Gly Val Asn Val Leu Asp Phe Asp Leu Asn Thr		
96	275	280	285
97	Val Ile Arg Asn Val Phe Gly Thr Phe Thr Gln Thr Met Tyr Asp Leu		
98	290	295	300
100	Asn Asn Met Val Asn Gln Thr Gly Asn Glu Tyr Lys Tyr Lys Glu Asn		
101	305	310	315
104	320		
105	Leu Ile Thr Phe Ile Asp Asn His Asp Met Ser Arg Phe Leu Ser Val		
108	325	330	335
109	Asn Ser Asn Lys Ala Asn Leu His Gln Ala Leu Ala Phe Ile Leu Thr		
112	340	345	350
113	Ser Arg Gly Thr Pro Ser Ile Tyr Tyr Gly Thr Glu Gln Tyr Met Ala		
116	355	360	365
117	Gly Gly Asn Asp Pro Tyr Asn Arg Gly Met Met Pro Ala Phe Asp Thr		
120	370	375	380
121	Thr Thr Ala Phe Lys Glu Val Ser Thr Leu Ala Gly Leu Arg Arg		
124	385	390	395
125	400	405	410
128	415		
129	Asn Asp Val Tyr Ile Tyr Glu Arg Lys Phe Phe Asn Asp Val Val Leu		
132	420	425	430
133	Val Ala Ile Asn Arg Asn Thr Gln Ser Ser Tyr Ser Ile Ser Gly Leu		
136	435	440	445
137	Gln Thr Ala Leu Pro Asn Gly Ser Tyr Ala Asp Tyr Leu Ser Gly Leu		
140	450	455	460
141	Leu Gly Gly Asn Gly Ile Ser Val Ser Asn Gly Ser Val Ala Ser Phe		
144	465	470	475
145	480		
148	Thr Leu Ala Pro Gly Ala Val Ser Val Trp Gln Tyr Ser Thr Ser Ala		
149	485	490	495
152	Ser Ala Pro Gln Ile Gly Ser Val Ala Pro Asn Met Gly Ile Pro Gly		
153	500	505	510
156	515	520	525
157	Val Thr Phe Gly Gly Val Thr Ala Thr Val Lys Ser Trp Thr Ser Asn		
160	530	535	540
161	Arg Ile Glu Val Tyr Val Pro Asn Met Ala Ala Gly Leu Thr Asp Val		
164	545	550	555
165	560		
168	Lys Val Thr Ala Gly Gly Val Ser Ser Asn Leu Tyr Ser Tyr Asn Ile		
169	565	570	575
172	Leu Ser Gly Thr Gln Thr Ser Val Val Phe Thr Val Lys Ser Ala Pro		
173	580	585	590
	595	600	605

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176 Leu Gly Asn Trp Ser Thr Asp Thr Ser Gly Ala Val Asn Asn Ala Gln  
 177 610 615 620  
 180 Gly Pro Leu Leu Ala Pro Asn Tyr Pro Asp Trp Phe Tyr Val Phe Ser  
 181 625 630 635 640  
 184 Val Pro Ala Gly Lys Thr Ile Gln Phe Lys Phe Phe Ile Lys Arg Ala  
 185 645 650 655  
 188 Asp Gly Thr Ile Gln Trp Glu Asn Gly Ser Asn His Val Ala Thr Thr  
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 192 Pro Thr Gly Ala Thr Gly Asn Ile Thr Val Thr Trp Gln Asn  
 193 675 680 685  
 196 <210> SEQ ID NO: 2  
 197 <211> LENGTH: 683  
 198 <212> TYPE: PRT  
 199 <213> ORGANISM: Thermoanaerobacterium thermosulfurigenes  
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 207 Ile Tyr Gln Ile Val Thr Asp Arg Phe Val Asp Gly Asn Thr Ser Asn  
 208 20 25 30  
 211 Asn Pro Thr Gly Asp Leu Tyr Asp Pro Thr His Thr Ser Leu Lys Lys  
 212 35 40 45  
 215 Tyr Phe Gly Gly Asp Trp Gln Gly Ile Ile Asn Lys Ile Asn Asp Gly  
 216 50 55 60  
 219 Tyr Leu Thr Gln Pro Val Glu Asn Ile Tyr Ala Val Leu Pro Asp Ser  
 220 65 70 75 80  
 223 Thr Phe Gly Gly Ser Thr Ser Tyr His Gly Tyr Trp Ala Arg Asp Phe  
 224 85 90 95  
 227 Lys Arg Thr Asn Pro Tyr Phe Gly Ser Phe Thr Asp Phe Gln Asn Leu  
 228 100 105 110  
 231 Ile Asn Thr Ala His Ala His Asn Ile Lys Val Ile Ile Asp Phe Ala  
 232 115 120 125  
 235 Pro Asn His Thr Ser Pro Ala Ser Glu Thr Asp Pro Thr Tyr Ala Glu  
 236 130 135 140  
 239 Asn Gly Arg Gly Met Gly Val Thr Ala Ile Trp Ile Ser Leu Tyr Asp  
 240 145 150 155 160  
 243 Asn Gly Thr Leu Leu Gly Gly Tyr Thr Asn Asp Thr Asn Gly Tyr Phe  
 244 165 170 175  
 247 His His Tyr Gly Gly Thr Asp Phe Ser Ser Tyr Glu Asp Gly Ile Tyr  
 248 180 185 190  
 251 Arg Asn Leu Phe Asp Leu Ala Asp Leu Asn Gln Gln Asn Ser Thr Ile  
 252 195 200 205  
 255 Asp Ser Tyr Leu Lys Ser Ala Ile Lys Val Trp Leu Asp Met Gly Ile  
 256 210 215 220  
 259 Asp Gly Ile Arg Leu Asp Ala Val Lys His Met Pro Phe Gly Trp Gln  
 260 225 230 235 240  
 263 Lys Asn Phe Met Asp Ser Ile Leu Ser Tyr Arg Pro Val Phe Thr Phe  
 264 245 250 255  
 267 Gly Glu Trp Phe Leu Gly Thr Asn Glu Ile Asp Val Asn Asn Thr Tyr  
 268 260 265 270

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271 Phe Ala Asn Glu Ser Gly Met Ser Leu Leu Asp Phe Arg Phe Ser Gln
272          275          280          285
275 Lys Val Arg Gln Val Phe Arg Asp Asn Thr Asp Thr Met Tyr Gly Leu
276          290          295          300
279 Asp Ser Met Ile Gln Ser Thr Ala Ser Asp Tyr Asn Phe Ile Asn Asp
280 305          310          315          320
283 Met Val Thr Phe Ile Asp Asn His Asp Met Asp Arg Phe Tyr Asn Gly
284          325          330          335
287 Gly Ser Thr Arg Pro Val Glu Gln Ala Leu Ala Phe Thr Leu Thr Ser
288          340          345          350
291 Arg Gly Val Pro Ala Ile Tyr Tyr Gly Thr Glu Gln Tyr Met Thr Gly
292          355          360          365
295 Asn Gly Asp Pro Tyr Asn Arg Ala Met Met Thr Ser Phe Asn Thr Ser
296          370          375          380
299 Thr Thr Ala Tyr Asn Val Ile Lys Lys Leu Ala Pro Leu Arg Lys Ser
300 385          390          395          400
303 Asn Pro Ala Ile Ala Tyr Gly Thr Thr Gln Gln Arg Trp Ile Asn Asn
304          405          410          415
307 Asp Val Tyr Ile Tyr Glu Arg Lys Phe Gly Asn Asn Val Ala Leu Val
308          420          425          430
311 Ala Ile Asn Arg Asn Leu Ser Thr Ser Tyr Asn Ile Thr Gly Leu Tyr
312          435          440          445
315 Thr Ala Leu Pro Ala Gly Thr Tyr Thr Asp Val Leu Gly Gly Leu Leu
316          450          455          460
319 Asn Gly Asn Ser Ile Ser Val Ala Ser Asp Gly Ser Val Thr Pro Phe
320 465          470          475          480
323 Thr Leu Ser Ala Gly Glu Val Ala Val Trp Gln Tyr Val Ser Ser Ser
324          485          490          495
327 Asn Ser Pro Leu Ile Gly His Val Gly Pro Thr Met Thr Lys Ala Gly
328          500          505          510
331 Gln Thr Ile Thr Ile Asp Gly Arg Gly Phe Gly Thr Thr Ser Gly Gln
332          515          520          525
335 Val Leu Phe Gly Ser Thr Ala Gly Thr Ile Val Ser Trp Asp Asp Thr
336          530          535          540
339 Glu Val Lys Val Lys Val Pro Ser Val Thr Pro Gly Lys Tyr Asn Ile
340 545          550          555          560
343 Ser Leu Lys Thr Ser Ser Gly Ala Thr Ser Asn Thr Tyr Asn Asn Ile
344          565          570          575
347 Asn Ile Leu Thr Gly Asn Gln Ile Cys Val Arg Phe Val Val Asn Asn
348          580          585          590
351 Ala Ser Thr Val Tyr Gly Glu Asn Val Tyr Leu Thr Gly Asn Val Ala
352          595          600          605
355 Glu Leu Gly Asn Trp Asp Thr Ser Lys Ala Ile Gly Pro Met Phe Asn
356          610          615          620
359 Gln Val Val Tyr Gln Tyr Pro Thr Trp Tyr Tyr Asp Val Ser Val Pro
360 625          630          635          640
363 Ala Gly Thr Thr Ile Gln Phe Lys Phe Ile Lys Lys Asn Gly Asn Thr
364          645          650          655
367 Ile Thr Trp Glu Gly Gly Ser Asn His Thr Tyr Thr Val Pro Ser Ser

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Input Set : A:\Sequence.ST25.txt  
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368	660	665	670
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375	<210> SEQ ID NO: 3		
376	<211> LENGTH: 683		
377	<212> TYPE: PRT		
378	<213> ORGANISM: Thermoanaerobacter sp.		
380	<400> SEQUENCE: 3		
382	Ala Pro Asp Thr Ser Val Ser Asn Val Val Asn Tyr Ser Thr Asp Val		
383	1 5 10 15		
386	Ile Tyr Gln Ile Val Thr Asp Arg Phe Leu Asp Gly Asn Pro Ser Asn		
387	20 25 30		
390	Asn Pro Thr Gly Asp Leu Tyr Asp Pro Thr His Thr Ser Leu Lys Lys		
391	35 40 45		
394	Tyr Phe Gly Gly Asp Trp Gln Gly Ile Ile Asn Lys Ile Asn Asp Gly		
395	50 55 60		
398	Tyr Leu Thr Gly Met Gly Ile Thr Ala Ile Trp Ile Ser Gln Pro Val		
399	65 70 75 80		
402	Glu Asn Ile Tyr Ala Val Leu Pro Asp Ser Thr Phe Gly Gly Ser Thr		
403	85 90 95		
406	Ser Tyr His Gly Tyr Trp Ala Arg Asp Phe Lys Lys Thr Asn Pro Phe		
407	100 105 110		
410	Phe Gly Ser Phe Thr Asp Phe Gln Asn Leu Ile Ala Thr Ala His Ala		
411	115 120 125		
414	His Asn Ile Lys Val Ile Ile Asp Phe Ala Pro Asn His Thr Ser Pro		
415	130 135 140		
418	Ala Ser Glu Thr Asp Pro Thr Tyr Gly Glu Asn Gly Arg Leu Tyr Asp		
419	145 150 155 160		
422	Asn Gly Val Leu Leu Gly Gly Tyr Thr Asn Asp Thr Asn Gly Tyr Phe		
423	165 170 175		
426	His His Tyr Gly Gly Thr Asn Phe Ser Ser Tyr Glu Asp Gly Ile Tyr		
427	180 185 190		
430	Arg Asn Leu Phe Asp Leu Ala Asp Leu Asp Gln Gln Asn Ser Thr Ile		
431	195 200 205		
434	Asp Ser Tyr Leu Lys Ala Ala Ile Lys Leu Trp Leu Asp Met Gly Ile		
435	210 215 220		
438	Asp Gly Ile Arg Met Asp Ala Val Lys His Met Ala Phe Gly Trp Gln		
439	225 230 235 240		
442	Lys Asn Phe Met Asp Ser Ile Leu Ser Tyr Arg Pro Val Phe Thr Phe		
443	245 250 255		
446	Gly Glu Trp Tyr Leu Gly Thr Asn Glu Val Asp Pro Asn Asn Thr Tyr		
447	260 265 270		
450	Phe Ala Asn Glu Ser Gly Met Ser Leu Leu Asp Phe Arg Phe Ala Gln		
451	275 280 285		
454	Lys Val Arg Gln Val Phe Arg Asp Asn Thr Asp Thr Met Tyr Gly Leu		
455	290 295 300		
458	Asp Ser Met Ile Gln Ser Thr Ala Ala Asp Tyr Asn Phe Ile Asn Asp		
459	305 310 315 320		
462	Met Val Thr Phe Ile Asp Asn His Asp Met Asp Arg Phe Tyr Thr Gly		

**VERIFICATION SUMMARY** DATE: 01/04/2006  
PATENT APPLICATION: US/10/562,021 TIME: 10:35:44

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L:13 M:270 C: Current Application Number differs, Replaced Current Application No  
L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date